From ab4el.com Tue Aug 24 00:00:00 1994
From: Brien Pepperdine <pepperb@gov.on.ca>
Subject: 2nd exchange

Either there are too few cw operators on, or I am on too much, or it is just serendipity... but last week I worked a station for the 2nd time (and an inet qrp list member at that), and last night I worked a fellow I had worked first time back in April.
Sort of a good feeling knowing one can bump into the same people after a while. Of course it happens on phone when I can easily hear calls or recognize voices; but now for instance I know what the QRP net control station sounds like that I call into on Wed. nites (somehow it seems his tone and sending seem distinctive, even off of a Heath uMatic keyer); it feels good to be having some sort of comfortable groove getting established.
Anyhow, that's the news from somewhat north-east of Lake Wobegon.

72 es cul
Brien
VE3VAW
Toronto

From ab4el.com Tue Aug 24 00:00:00 1994
From: Adrian Weiss W0RSP English Department <AWEISS@charlie.usd.edu>
Subject: RE: A simple tuner

Jeff:
  Good posting. Perhaps you could have clarified "as long as possible and as high as possible" since your setup will work for even short (less than half-wave) wires.
  I'd add one qualification. If this is a permanent installation as opposed to a portable to be erected in whatever circumstances obtain, I'd suggest that the inductance be modified. Once you have found the tap-point that works best, eliminate all unnecessary turns of the inductance, perhaps leaving a couple extra turns in case rain/snow (here at least!) changes the impedance of the antenna. The reason for eliminating the unneeded turns is simple: current loop formed by the "shorted" turns and tap wire. The turns aren't really dead at r.f. as "shorted" implies.
  A good example of a simple antenna.
     73, Ade

From ab4el.com Tue Aug 24 00:00:00 1994

From: "John F. Woods" <jfw@ksr.com>
Subject: Re: Antenna experiments

> 2. I'm a bit skeptical of the "circulating current" explanation
> of tuner inefficiencies.

Having not seen the text of this explanation, I'm not sure what I'm arguing about :-), but "circulating currents" contribute to tuner losses in the following sense: you're correct that the circulating currents don't "go" anywhere, they essentially just fill the storage capacity of the reactive components. However, the losses of the non-ideal reactive components are proportional to the current through them, which (if there are large circulating currents) are substantially higher than the the supply current; thus, a high-Q setting on a tuner will multiply the losses of the tuner at the same time it improves the selectivity.

> o If the power is being dissipated WITHIN the tuner, then
> the tuner should get warm. For example, if I have
> a very poor tuner and ALL the power is being dissipated
> within it (rather than going out the ports), then, with
> a 100 watt transmitter, I'm going to have a helluva
> warm tuner in a very short time. I'd be surprised
> if anyone can measure a significant, or even small,
> heat rise within their tuner. How much power is
> being dissipated this way, realistically?

I've felt tuners get VERY WARM. You get minimum losses by using high-Q parts in a low-Q circuit (i.e. let the source and load impedances be the dominant "losses").

> 3. I still stand by my statement that an RF current meter is NOT
> an effective way to measure antenna radiating efficiency (or
> maybe I should say, an SWR meter is just as valid as an RF
> meter). Again, I will use the example of a resistor attached to
> the end of my transmission line.

You are correct; if the goal is to radiate power, only a field strength meter will tell you directly how much power you are radiating. In a more practical sense, though, an RF current meter is usually adequate (if your antenna is acting as a resistor, your transmatch cannot fix this :-), and an SWR meter can be misleading (think of it this way: if one RF power meter is misleading, then two RF power meters (in an SWR meter) are twice as misleading). If your antenna does not have noticable resistance (no corroded joints, no dummy loads wired in parallel :-), then forward power is usually a sufficient indicator of correct transmatch adjustment.

However, I have been trying to construct a plausible situation where maximum field strength, maximum forward power, and minimum SWR would all fail to coincide. I think it could happen like this: start with a rig whose optimum impedance is

not 50.0 ohms (and with a rig built with 10% components, you could easily have an output network that transformed the load point to 55 ohms!); add a fairly lengthy 50 ohm coax, and a non-50-ohm antenna. The rig will put out the maximum power when it sees a 55ohm load, but the SWR meter would certainly not read 1:1 at that point. As you trim the antenna to reduce SWR, depending on its impedance, I think there can be a point between 1:1 SWR and the point where its impedance is transformed to what the rig really expects (assuming you luck out and have that ever happen) where the reduction in output power due to mismatch is balanced by the reduction in cable losses compared to the rig-matched condition. Unfortunately, I'm still suffering from a cold, and haven't had the energy to work out the math.

> The RF current meter thinks I'm
> dumping lots of power into the antenna. Therefore am I radiating efficiently? That is, RF current is proportional to field strength, but field strength may vary enormously, depending on the antenna (what's the field strength of a resistor?). A dummy load is a crummy radiator, but you wouldn't know it looking at an RF ammeter.

I look forward to your response!

Cheers,

- Jeff, WA6AHL

From ab4el.com Tue Aug 24 00:00:00 1994
From: adams@chuck.dallas.sgi.com (chuck adams)
Subject: Re: CO 14K'er event

Bob, KI0G, announced the 40K'er event this weekend. It would be nice if someone tells us if they are carrying a HF QRP rig.

I sent HW-7 to friend of mine a few years ago who was going to try to take same up on top. I realize they have severe limitations on weight, etc. I'm too old to do this for sure. :-)

gl es dit dit

Chuck Adams K5FO CP-60
adams@sgi.com

From ab4el.com Tue Aug 24 00:00:00 1994
From: jeffrey@math.hawaii.edu (Jeffrey Herman)
Subject: Don't forget the HW-9

All this talk about the 8 - no one has mentioned the HW-9. Aren't any
of you using a 9? Doesn't the 9 incorporate all the good mods for the
8, plus a lot more? I never see any 9's posted on .swap or anywhere
else.

Does Heath still have copies of their manuals? If so, I'd love to
get the manual for the 9. I'm going to send off a letter right now
to them - I'll let you folks know their response.

Jeff NH6IL

From ab4el.com Tue Aug 24 00:00:00 1994
From: F_SPEERJR@TITAN.SFASU.EDU
Subject: Re: Don't forget the HW-9

>All this talk about the 8 - no one has mentioned the HW-9. Aren't any
>of you using a 9? Doesn't the 9 incorporate all the good mods for the
>8, plus a lot more? I never see any 9's posted on .swap or anywhere
>else.
>Jeff NH6IL

Before I sold my old HW-8 I read up on it and on the "9." The general drift of
opinion was that the "9" was never as good as the "8." The most common mod
articles I found for the "9" were about stopping its drifting.

Incidentally, having sold the "8," I now have a surplus copy of WB8VGE's _The
HW-8 Handbook_. That's a revision of the classic old _Hotwater Handbook_, and
contains LOTS of mods for the "7," the "8," and the "9."

First $12 takes it.

72!
- --
If RST>519 Jim Speer, K5YUT
Then cut_power; f_speerjr@titan.sfasu.edu

From ab4el.com Tue Aug 24 00:00:00 1994
From: rehm@zso.dec.com
Subject: FCC to regulate Internet?

- ------- Forwarded Message
Newsgroups: rec.radio.amateur.policy

From ab4el.com Tue Aug 24 00:00:00 1994
From: anonymus+1047@tygra.michigan.com
Subject: FCC to regulate Internet?

(UPI) dateline, Washington, DC. The White House confirmed today that the FCC will become the federal agency to assume responsibility for regulating the so called: "Information Super Highway". Today this consists of an autonomous network of computers known collectively as the Internet. Usually reliable sources revealed that the government is becoming increasingly apprehensive about the Internet's uncontrolled growth and the potential for damage to the national security. A highly placed government source was quoted as saying " ... now anyone with a thousand dollars can obtain the computer hardware and software necessary to communicate on the Internet. Irresponsible individuals can easily transmit messages worldwide. Clearly, there is a need for government regulation."

In response to these concerns the FCC is rumored to be preparing restrictive regulations to assure "responsible use" of the Internet. The FCC is reportedly cooperating with other national and international agencies to coordinate these regulations. Several former eastern block countries and Italy are reportedly coordinating their internal regulation planning with the FCC.

Although details are sketchy at this time, these new regulations are likely to take the form of some sort of license examination for Internet users. Despite the fact that a costly new government bureaucracy will be established it will likely save money in the long run, according to government sources. "A single USENET posting may cost hundreds if not thousands of dollars, therefore, if licensing reduces such postings by only 10% the savings will more than recover these additional costs", said a highly placed government source.

Expert government watchers have been able to piece together a fairly comprehensive picture of the soon-to-be-proposed license requirements. Based upon the past history of the FCC, the test will likely consist of three parts: theory, jurisprudence and practice.

The theory portion of the examination will include written examination

of the principles of digital logic, elements of generic machine language programming, comprehensive knowledge of TCP/IP and network interfacing hardware.

The jurisprudence portion will assess the candidates basic knowledge of the regulations governing use of the Internet and will cover ethical as well as legal issues. Licensing will likely include a "Internet oath" requirement in which the candidate will swear to uphold certain basic standards of conduct. Users of the internet will be required to broadcast there license numbers at logon and intermittently after connection to the Internet.

The practice portion of the examination is likely to be the most controversial. Reportedly, all candidates must pass a typing skills examination and achieve no less than 40 words/per/minute to obtain a (temporary) novice license. This must be raised to 80 words/per/minute before a regular-status license will be issued. Novices will restricted to operating networked computers having speeds of less than 5 Mhz or operation of SLIP or dial-up connections of no greater than 2400 baud. (It is rumored that the FCC will make 5 Mhz replacement crystals available at a nominal charge to temporarily slow computers of novice operators).

The FCC also recognizes that there are conditions when terminal emulators are not available, therefore, an expert class will be established for communication using only numeric keypads and bi-digit numeric displays. Although needing a minimum of equipment this mode will require sending, receiving and manual translation of raw ASCII codes. Guidelines for minimum communication rates for this mode have yet to be established while the FCC awaits public input. Although felt to be a desirable goal for all users, this class of license will only be required by individuals operating wireless (RF) LANS.

Asked what the effect of proposed regulations would have on the Internet, a highly placed official noted that these rules should not be considered prohibitive as they simply bring regulation of the Internet in line with other communication modes under FCC governance. However, he did feel that such regulations should be very helpful in restraining the rapid growth of the Internet.

;-)

- ------- End of Forwarded Message

From ab4el.com Tue Aug 24 00:00:00 1994
From: anonymus+1047@tygra.michigan.com
Subject: FCC to regulate Internet?

(UPI) dateline, Washington, DC. The White House confirmed today that the FCC will become the federal agency to assume responsibility for regulating the so called: "Information Super Highway".....

... reams and reams deleted ...

- ----- End Included Message -----

From ab4el.com Tue Aug 24 00:00:00 1994
From: "John F. Woods" <jfw@ksr.com>
Subject: Re: FCC to regulate Internet?

Well, all in all, I find myself completely unsurprised that someone wishing to post a _lame_ anti-morse-code article used the anonymous server at tygra.michigan.com. Great minds think alike, as they say, and then there's old JPP...

From ab4el.com Tue Aug 24 00:00:00 1994
From: Raymond.Anderson@EBay.Sun.COM (Ray Anderson)
Subject: Re: FCC to regulate Internet?

Chuckle, chuckle.... wonder how many people this guy sucked in??

Ray WB6TPU

- ------- Forwarded Message
Newsgroups: rec.radio.amateur.policy

From ab4el.com Tue Aug 24 00:00:00 1994
From: doug@acpy01.utsd.att.com (os2user@vmdoug.utsd.att.com)
Subject: Ferrite beads. Help.

   I originally sent the message below on Monday, but didn't see it
   in the Digest and didn't get any replies. Let's try again again...

   Help. I'm working on a project that uses ferrite beads. The
   instructions call for 5 40u mini ferrite beads from Amidon,
   number 63 material.

   Ok. I order a catalog from Amidon. Look on page 2 under ferrite
   shielding beads. Hmmm. Nothing listed for #63. Hmmmm. Nothing
   listed for u=40.   Check rest of catalog. Hmmm. Ferrite toroidal
   cores in a 63/67 mix with u=40... but I don't think that's what
   I want. Hmmmmmmm...what's wrong with this picture. Did Amidon
   stop making these beads ? What does the 40u mean? 40 microhenries?

   Instead of 5 40u ferrite beads, can I substitue two of the #61 (u=125)
   beads or one of the #64 (u=250) beads???

Not really sure how these bead things add up,

Doug KA2UPW
doug@acpy01.utsd.att.com

From ab4el.com Tue Aug 24 00:00:00 1994
From: Gary M Diana <gmd@adm01.rfc.comm.harris.com>
Subject: HW Clone / Inet Rig

Hello All --

   All this talk about the HW-7/8/9s had me digging through my archives
last night. Back when this list first formed, chuck k5fo, put together
a binder of schematics and manuals for several rigs. Included in this
was the info on the HW 7/8/9 Rigs. The schematics are very informative,
and between those and the mods which have been written up, a person

with a schematic/artwork generation tool could probably come up with a modern day equivalent for those rigs. Now if I only could get a paid leave of absence from my job to work on such an effort!

   On the Inet rig, although I have not contributed to any of the discussion, it has been my belief that the group would splinter early on, and move off in perhaps 3 directions, each following a significantly different set up design goals/final product criteria. The bottom line is that this will only happen if a few ambitious hams quietly go off, by themselves, and emerge with something tangible to build on. My guess is that this is probably happening as I type.

73, Gary N2JGU

From ab4el.com Tue Aug 24 00:00:00 1994
From: JOHNZ@utxvms.cc.utexas.edu (John Moore)
Subject: HW-8

One thing that keeps interest high in the HW's is that they are both multiband and inexpensive. I would love to see an updated quality multiband QRP rig in kit form..I would even like a slightly improved version of the HW-8. I am not sure what Heath would think of HW-8 clones however.
KB5VIW..John

From ab4el.com Tue Aug 24 00:00:00 1994
From: janderson@polycom.com
Subject: Re: HW-8

> I own an HW-8. I operate an HW-8. An HW-8 is a very good friend of mine. But I would NOT buy another. It's the nineties, baby - I'm going to get a NorCal SIERRA.
>
> - Jeff, WA6AHL

From ab4el.com Tue Aug 24 00:00:00 1994
From: stark <mswmod@sage.unr.edu>
Subject: Re: HW-8 Repro...

Hi Ray,

Maybe someone should post to the net what is going
to be made. Last I saw was just a bunch of ideas.

Have the "final" goals been cast in stone yet?

If that has been posted and I missed it, I'll bet I'm
not the only one.

73's, Ron

.....KU7Y.....
.....Monte "Ron" Stark.....
.....Sun Valley, Nevada.....

From ab4el.com Tue Aug 24 00:00:00 1994
From: Raymond.Anderson@EBay.Sun.COM (Ray Anderson)
Subject: Re: HW-8 Repro...

Ron,

As far as I know, there have been no decisions made.
A couple of weeks ago there were a multitude of ideas flying
around (like qrm) and then all of a sudden silence (the band went out).

So, no, there are no goals cast in stone yet that I've seen.
Daniel over in Singapore was the "acting" keeper of the conversation,
however since he has been absent from the forum the conversation
has waned.

73's de WB6TPU, Ray
raymonda@uranium.ebay.sun.com

- ----- Begin Included Message -----

Hi Ray,

Maybe someone should post to the net what is going
to be made. Last I saw was just a bunch of ideas.

Have the "final" goals been cast in stone yet?

If that has been posted and I missed it, I'll bet I'm
not the only one.

73's, Ron

- ----- End Included Message -----

From ab4el.com Tue Aug 24 00:00:00 1994
From: Stephen Lee <slee@u.washington.edu>
Subject: Re: HW-8 Repro...

Hey folks,

I'm one of those interested in the inet-XX rig. So much so that
I've acquired some Plessey SL6440 mixer ICs and checked out a couple
books on related subjects. I will make progress, however slow.
I didn't get the data sheet with the mixer, so a minor setback there.
Went dumpster diving out behind the physics building and came up with
a brand new reduction geared tuning mechanism just QRP size :)

The books I've checked out are as follows:

Communications Receivers
Principles & Design
by Ulrich Rohde & T.T.N Bucher
TK 6563.R57 1988

Crystal Oscillator Design
& Temperature Compensation
by Marvin E. Frerking
TK 7872.07F73 1978

Crystal Oscillator Circuits
by Robert J. Matthys
TK 7872.07M37 1983

So my inet rig will use Plessey mixers, #1, and I'll be wanting the VFO
input impedance to the 1st mixer to be 50 Ohms. All I know about the
Plessey mixers is that they use a bipolar transistor array in a push-
pull configuration. That from the Communications Receivers Principles
& Design book. The rest I will learn as necessary.

Any recommendation on what kind of antenna coupling I should employ???

Stephen Lee
KC7AVB

PS Got my ticket in February of this year so haven't had much

radio experience. Am tech+ and see the need to upgrade.
Enjoyed building and especially using the NorCal 40.

From ab4el.com Tue Aug 24 00:00:00 1994
From: "JEFF M. GOLD" <JMG@tntech.edu>
Subject: HW9

>>All this talk about the 8 - no one has mentioned the HW-9. Aren't any
>>of you using a 9? Doesn't the 9 incorporate all the good mods for the
>>8, plus a lot more? I never see any 9's posted on .swap or anywhere
>>else.
>>Jeff NH6IL
>
>Before I sold my old HW-8 I read up on it and on the "9." The general drift of
>opinion was that the "9" was never as good as the "8." The most common mod
>articles I found for the "9" were about stopping its drifting.
>
>Incidentally, having sold the "8," I now have a surplus copy of WB8VGE's _The
>HW-8 Handbook_. That's a revision of the classic old _Hotwater Handbook_, and
>contains LOTS of mods for the "7," the "8," and the "9."
>
>First $12 takes it.
>
>72!
>--
>   Then cut_power;   f_speerjr@titan.sfasu.edu
>

Well it is my undersanding this is not at all true.. wasn't the
HW8 a DC receiver.

My HW9 is a superhet.. about 5 watts adjustable power on 8 bands,
has RIT, S meter .. sensitive receiver, good narrow audio filter,
plenty of audio to drive homemade large speaker which I have on
side of shack.. good adjustable QSK, mine doesn't drift.. or not
any so it is a problem, never had one bad report on it...

73

Jeff, AC4HF

From ab4el.com Tue Aug 24 00:00:00 1994
From: ryme@wpsmtp.bloomu.edu
Subject: INET rig

>>>>>>>>>>>>>>>

>From bmitchel Wed Aug 24 08:01:49 0400 1994
Date: Wed, 24 Aug 1994 08:01:49 -0400

From ab4el.com Tue Aug 24 00:00:00 1994
From: burdick@interval.com (Wayne Burdick)
Subject: Inet Rig

Watching the Inet Rig debate go by, it makes me think of the old cliches about how hard it is to do things by committee. A zillion good ideas have been tossed about. At some point--best case--one of the ideas will fire someone's imagination, and that person will launch a focused effort to realize a vision. If my experience designing and building the NorCal 40 and Sierra is any indication, a project of this sort, especially a big one, will begin life as a an innovative circuit on a protoboard--not as a list of features.

It's heartening to see such a wide range of proposals. I hope the visionaries will sneak off to their workbenches and get started so we can see what emerges!

72,
Wayne, N6KR

From ab4el.com Tue Aug 24 00:00:00 1994
From: Adrian Weiss W0RSP English Department <AWEISS@charlie.usd.edu>
Subject: Re: Ingrams end-fed dipole--any users?'

Hi Craig:
Tnx for the reference to the QST article. I'll have to check it to see just what we've been talking about. In any event, we're looking at 3/4-wave of wire which ought to radiate something regardless of the "dipole" misnomer and the presumptive "r.f. choke."
73, Ade

From ab4el.com Tue Aug 24 00:00:00 1994
From: Adrian Weiss W0RSP English Department <AWEISS@charlie.usd.edu>
Subject: Re: Ingrams end-fed dipole--any users?'

Craig:
  On second glance, the title is interesting: "resonant feedline". Another misnomer of sorts. Any feedline is "resonant" once a tuner has cancelled out the reactive component of the wave traffic on the line. The entire system including feedline and antenna is resonant, or tuned to the frequency of operation. 73 again, Ade

---

From ab4el.com Tue Aug 24 00:00:00 1994
From: NYOUNG@DESIRE.WRIGHT.EDU
Subject: NN1G questions

I have my 30m NN1G running, both tx and rx. But (you heard that one coming, didn't you) there are some problems.
1. Low sensitivity. I hears but I have the af gain jacked up all tthe way and, although there are stations in there, none of them is cramming sigs down my ears like the TR7 does. I'm looking for slobber runs and such. Yes, I checked the coils and the winding on the coils and transformers.
2. Low (and I mean so low it won't even budge my milliwatt SWR bridge) output power.
Questions: 1. What is the output level on the VFO? What is the necessary VFO injection level on the NE602? Am I looking at conversion loss or not?
Questions: 2. Could the VFO level be insufficient to get a signal out the transmit hose? I have signal gain up to the transistor just before the output (at least on my digital VOM w/RF probe).

Other than that, it works... as well as it works.

Nils
WB8IJN &c

From ab4el.com Tue Aug 24 00:00:00 1994
From: "John F. Woods" <jfw@ksr.com>
Subject: Re: NN1G questions

> I have my 30m NN1G running, both tx and rx. But (you heard that
> one coming, didn't you) there are some problems.
> 1. Low sensitivity.

It's not a loud rig. Use good earphones.

> 2. Low (and I mean so low it won't even budge my milliwatt SWR

> bridge) output power.
> Questions: 1. What is the output level on the VFO? What is the
> necessary VFO injection level on the NE602? Am I looking at
> conversion loss or not?

The 602 goes into gain compression with an input of -25dBm, putting out
- -5dBm. Don't expect a 602 to pump out a lot of signal.

> Questions: 2. Could the VFO level be insufficient to get a signal
> out the transmit hose? I have signal gain up to the transistor
> just before the output (at least on my digital VOM w/RF probe).

If the final stage has a gain of roughly 13dB (pretty typical), then
the input should be about 20dBm (100mW); what signal level are you seeing at
the final input?

From ab4el.com Tue Aug 24 00:00:00 1994
From: btoback@netcom.com (Bruce Toback)
Subject: Re: NN1G questions

Nils WB8IJN writes:
>I have my 30m NN1G running, both tx and rx. But (you heard that
>one coming, didn't you) there are some problems.
>1. Low sensitivity.
>2. Low ... output power.

Add a third penlight cell to your power supply and all should be well :-).

- -- Bruce KN6MN

From ab4el.com Tue Aug 24 00:00:00 1994
From: Jeff Jones <jeffj@crl.com>
Subject: QRP Gopher!

I found a gopher that has a QRP section on it! It is gopher.cwru.edu,
look under the activities menu and you will see their amateur radio club.
That's where the section is. I'd like to find out how to post more
projects and what not to it.

Jeff
AB6MB

From ab4el.com Tue Aug 24 00:00:00 1994
From: Adrian Weiss W0RSP English Department <AWEISS@charlie.usd.edu>
Subject: re: QRP meter

Jeff:
  I can guess at a couple of reasons. A good VOM probably uses wire-wound resistors (inductors at r.f.) for one. Also, a VOM presents a host of possible r.f. paths -- feed a signal into it and it'll radiate, generate, dissipate etc.
  73, Ade

From ab4el.com Tue Aug 24 00:00:00 1994
From: KELL@LARK.JSC.NASA.GOV
Subject: Re: Random Wire Antenna

From: SMTP%"pepperb@gov.on.ca" 23-AUG-1994 17:26:28.31

    >Could you tell me (us) more about this tuner
    >Was it in SPRAT and also in 73 magazine, or are those both SPRAT issue
                                    ^^^^^^^^
    >numbers?
    >I wonder if it would be OK for a diagram to be posted here and parts list
    >etc. without violating SPRAT (or 73 magazine) copyrights, or is this a
    >relatively public es known circuit?
I think it's relatively well known. If it's alright with the SPRAT editor (G3RJV, George Dobbs), I will attempt an ascii diagram.
    >I do know of a thing called the Super T tuner in Sprat some bit back,
    >which is also a Kanga kit - featured inductance and a number of fixed
    >capacitances that can be switched in for a variety of capacitances sums.
That's it. I built mine from scratch tho. Actually, it is switched inductors and a rotary variable cap.
    >72
    >Brien
    >VE3VAW
    >Toronto

From ab4el.com Tue Aug 24 00:00:00 1994
From: janderson@polycom.com
Subject: Re: Re: Antenna experiments

          Bob:

Thanks for the quick response and the thought provoking comments. Here are some more thoughts and further comments. I'm going to post this to the general list, because there are some points that bear discussion (and I may need correcting), as will soon be evident...

1. Fluctuating currents in the transmission line AFTER the tuner tell me that the G5RV is indeed acting CORRECTLY. The G5RV is non-resonant at most frequencies of operation (and so requires a tuner to match it to the transmitter). In fact, I'd be worried if these currents weren't fluctuating, and here's why:

- The impedance of the antenna system, when measured at the point where it connects to the tuner output, will change, and typically change dramatically, with frequency. Only if the the transmission line is terminated with a RESISTIVE load (that is, connected in place of the antenna) will the transmission line input impedance appear to be constant, independent of frequency (and this resistance needs to be the same value as the tranmission line's characteristic impedance).

- Therefore, if the impedance at this point varies with frequency, then, for a given power, current will vary too. So I should see different currents at different frequencies.

- If current is constant with frequency, then it means that I have a big fat resistor, not an antenna, connected to the end of my tranmission line. Not the desired case, since dummy loads make poor radiators.

- However, at the tuner's INPUT I better see constant current going in for a given power, otherwise I have an impedance mismatch, and therefore non-optimal power transfer.

2. I'm a bit skeptical of the "circulating current" explanation of tuner inefficiencies. Most tuners are simply common impedance matching circuits that are used in many many applications, and it's only in this one application (tuners) that I've heard so much worry about these currents. I'd love to see a convincing argument concerning them. As it is, my thoughts follow the following lines:

- Power into a tuner has to go one of the following places:
    - Out the output (good)
    - Out the input (bad)
    - Radiated BY the tuner (bad)
    - Dissipated WITHIN the tuner (bad)
- Now, if the tuner is radiating power, then a field strength meter is exactly the WRONG device to use, since it will measure this field, rather than the antenna. However, I don't think that this is typically the case (could it be?).
- If the power is being dissipated WITHIN the tuner, then the tuner should get warm. For example, if I have a very poor tuner and ALL the power is being dissipated within it (rather than going out the ports), then, with a 100 watt transmitter, I'm going to have a helluva warm tuner in a very short time. I'd be surprised if anyone can measure a significant, or even small, heat rise within their tuner. How much power is being dissipated this way, realistically?
- Looking at this from another angle - tuner parts are capacitors and inductors - reactive parts with small resistive components. It is these resistive components that dissipate power, not the reactive parts. If these resistive components are very much smaller than the radiation resistance of the antenna, (as is true for most antennas in amateur use) then little power will be dissipated within the tuner.
- Currents don't circulate forever within the tuner - they have to go someplace (this would be akin to someone eating forever without having an output port - guess what happens?).

In other words, I'd like to see a convincing argument FOR circulating currents. Remember, unequal currents at tuner input and output is not a convincing argument - these can be explained by the unequal impedances at input and output.

3. I still stand by my statement that an RF current meter is NOT an effective way to measure antenna radiating efficiency (or maybe I should say, an SWR meter is just as valid as an RF meter). Again, I will use the example of a resistor attached to the end of my transmission line. The RF current meter thinks I'm

dumping lots of power into the antenna. Therefore am I radiating efficiently? That is, RF current is proportional to field strength, but field strength may vary enormously, depending on the antenna (what's the field strength of a resistor?). A dummy load is a crummy radiator, but you wouldn't know it looking at an RF ammeter.

I look forward to your response!

Cheers,

- Jeff, WA6AHL

From ab4el.com Tue Aug 24 00:00:00 1994
From: lhalliday@creo.bc.ca
Subject: Re[2]: When is 30m open, anyway?

Jeff NH6IL writes:

> We have a wonderful system of 30M beacons: All of those dozens
> of time signal stations anchored on 10.000000000... MHz (in
> particular, WWV and WWVH and JJN and JJY. If you can DX a time
> station on 10 Mc then you know 30M is open!

Using utility and broadcast HF stations as propagation beacons is a technique I find many hams don't know about. While these stations use far higher power levels than us hams do (especially QRP types), if, for example, you can't hear the BBC from Ascension Island on 15260, you know there's not much point in looking for the South Atlantic on 20.

Real excitement is when you tune to 5000 and hear (in order of signal strength) VNG, WWVH, WWV and BPM. VNG is in Llandilo, ACT, Australia and have cute QSLs, as do WWVH. I think BPM is in Shanghai...

Oh, BTW: my 30m NN1G kit from Dan's Small Parts & Kits arrived yesterday. Assembly is in progress - I populated the receiver board last night, except for the toroids (which I'll do tonight). The boards and parts look good, but I find many of the disc ceramic capacitors seem larger than those the board designers had in mind. If I can get it assembled, tested and aligned by next Thursday I will of course take it to Europe to keep the TS-120V company.

73 from Burnaby,
laura VE7LDH

From ab4el.com Tue Aug 24 00:00:00 1994
From: jeffrey@math.hawaii.edu (Jeffrey Herman)
Subject: Switch for the simple tuner

Yesterday I posted the `simple qrp long wire antenna tuner' but I
forgot to mention something. I suggested using an alligator clip
to vary the inductance but you might want to try using the 13-
position rotary switch from a VHF TV tuner (the UHF tuner provides
use with a neat variable cap for other projects - I'm using one
in the 40M vfo I mentioned the other day on here).

Ade suggested to eliminate the unnecessary turns in the tuner's
inductor (excellent idea!) but I use my tuner for all bands so
I need a wide range of inductance. Once I get a 160M xmtr built
and determine the tuner inductance needed for it then I can eliminate
any of the unused turns. Thanks Ade!

Jeff NH6IL (soon to be WA6QIJ again as soon as the FCC approves
              this Vanity callsign proposal)

From ab4el.com Tue Aug 24 00:00:00 1994
From: Adrian Weiss W0RSP English Department <AWEISS@charlie.usd.edu>
Subject: RE: Thanks (was Ingram's end-fed dipole -- any users?)

Hi again!
  OK on your space problems -- not uncommon for city dwellers including myself! Maybe a couple of pointers that could help out.
  1) Your lot may determine the bands on which you can operate. For instance, 80 meters (halfwave = 133-ft) is usually out unless you have a nice lot which happens to have two nice trees at the long ends. On the other hand, if you live in a two story house or can put up a guyed pole anchored to your chimney, or mount a 50-ft telescoping mast against the side of your roof, you may be able to string an 80-meter inverted Vee, which is nothing more than a regular half-wave dipole supported at the feedpoint (middle) with the two sides sloping down and strung to any support that will keep it out of people's faces. Since a half-wave on 40-meters is only 66-ft, most city lots will have adequate space.
  2) The actual configuration of a dipole doesn't have to look like the drawings in books. Guys have bent the runs of wire, dipped them under obstructions and back up into the air etc. End-fed wires have been bent around

trees etc. The point is to get a hunk of wire up into the sky as high as you can, either at the center, or at one end. Ideally, the antenna would be in the clear and far removed from anything metal such as power lines etc. In the real world, many of us do the best we can.

3) Stick to a simple antenna such as a dipole or end-fed. Use an antenna tuner to match the feedline to the transmitter.

4) Open ladder line is the most efficient feedline (lowest loss), but for short runs (30-50ft at most for a dipole with center on the roof), RG-8 coax exhibits negligible loss. But get good RG-8 -- 96% shield braid. Feeding a dipole with twinlead or open ladder line has the added advantage of allowing multiband operation. A 40-meter dipole will operate on all higher bands when fed with a balanced line thru an antenna tuner. It will also work out on 80-m but the effectiveness is diminished. You can still work guys on 80 with a 40 meter diple fed with balanced line. A coax feedline ties you to one band unless you attach several dipoles to it. For example, you can feed dipoles cut for 40, 20, and 15 meters with a single run of coax. Better to use the balanced line.

5) Eliminate possible sources of resistive loss. Don't just splice the feedline conductors to the antenna wire -- do a splice plus shiny solder joint. Likewise, make sure other solder joints (coax connector etc.) are good. It is a good idea to stave off weathering by wrapping any connections.

6) Bottom line: get it up as high as possible. Orientation (E-W etc.) doesn't make all that much difference.

Hope this sets you off in the right direction.

Best 73, Ade

From ab4el.com Tue Aug 24 00:00:00 1994
From: Clark Savage Turner WA3JPG <turner@safety.ICS.UCI.EDU>
Subject: Re: Thanks (was Ingram's end-fed dipole -- any users?)

Ade writes that using coax to feed a 40 meter dipole ties you to the single band. I have always wondered about this. I have very often used coax to feed 40 and 80 meter dipoles and have used a tuner to use them on other bands. Of course, this was when I was out in the country and didn't care about TVI or feedline radiation at all. I never used a balun. I used 75 ohm cheap TV coax. I don't know how much loss I suffered, but I was always happy that I could talk to people on all bands, even with QRP. Now I use twin lead, but simply because it seems that twin lead leads to lower TVI when I use it :-) .

So....what is the scoop on this? Ade, do you speak of the overall
efficiency of the arrangement? Or are there other reasons that I
should not use my simple dipole fed with coax (no balun of any kind)
on bands where it is not resonant?

Clark
WA3JPG

From ab4el.com Tue Aug 24 00:00:00 1994
From: "John F. Woods" <jfw@ksr.com>
Subject: Re: Thanks (was Ingram's end-fed dipole -- any users?)

From ab4el.com Tue Aug 24 00:00:00 1994
From: Clark Savage Turner WA3JPG <turner@safety.ICS.UCI.EDU>
Subject: Re: Thanks (was Ingram's end-fed dipole -- any users?)

Thanks, John, ... it makes sense to worry about losses in a high
SWR situation when using coax.

Now, just curious, if I use the tuner - isn't the coax now part of the
antenna and the shield radiating? Does this change the situation (much?)

Clark
WA3JPG

From ab4el.com Tue Aug 24 00:00:00 1994
From: "John F. Woods" <jfw@ksr.com>
Subject: Re: Thanks (was Ingram's end-fed dipole -- any users?)

> Now, just curious, if I use the tuner - isn't the coax now part of the
> antenna and the shield radiating? Does this change the situation (much?)

Not necessarily; mere use of a nonresonant antenna with coax (tuner or not)
doesn't induce the coax to radiate, but I don't know offhand what situations
do cause it. I'm pretty sure the tuner doesn't change whether or not the
coax radiates, however.

From ab4el.com Tue Aug 24 00:00:00 1994
From: Brien Pepperdine <pepperb@gov.on.ca>
Subject: What does your QRP club do?

Could I get some input from members of the list who belong to a qrp club

they physically go to meetings of?
We have a almost 2 year old club here, and I think the president is a bit short of ideas as to what to do this fall - winter. There seems to be a diversity of interests; some want to build, some 'have a radio' thanks. I'd like to see if any activities carried out might be of interest to our group. I might propose a group purchase of the NE 40 40. We have one guy who wants to do everything from scratch, and is anti-kit, but never does get anything scratch built from his junkbox, so how do we accomodate divergent HB interest.
WE have access to good instruments and test equipment via a technical college, so I think we should build to a degree.
Or... should we have a long dinner together and discuss our recent radio activity, problems and solutions to building done at home, antenna projects, etc. and leave the soldering to the wee hours by oneself?

Or... formal presentations on transmission line theory, etc.

Thanks for the input. I am sure a lot of different club members out there can use the new ideas for their own existing, nascent or planned clubs.

72
Brien
VE3VAW
Toronto

From ab4el.com Tue Aug 24 00:00:00 1994
From: Stephen Trier <sct@po.cwru.edu>
Subject: When is 30m open, anyway?

Here is a very basic question: When is 30m open, anyway? Is it a daytime band or a nighttime band? Should I look for 40m-style behavior or 20m-style?

Stephen

- --
Stephen Trier
sct@po.cwru.edu
KG8IH

The photovoltaic cell is not an electronic device in the accepted sense, since the conduction through it occurs in a semiconductor....
- Standard Handbook for Electrical Engineers, 1941

From ab4el.com Tue Aug 24 00:00:00 1994

From: jeffrey@math.hawaii.edu (Jeffrey Herman)
Subject: Re: When is 30m open, anyway?

30M is an early evening band - it opens prior to 40M openning, and it
opens prior to 20M closing for the night.

We have a wonderful system of 30M beacons: All of those dozens of
time signal stations anchored on 10.000000000... MHz (in particular,
WWV and WWVH and JJN and JJY. If you can DX a time station on 10 Mc
then you know 30M is open!

.73,
Jeff NH6IL

From ab4el.com Tue Aug 24 00:00:00 1994
From: Brad Mitchell <bmitchel@CBA.Kodak.COM>
Subject: Why the Inet rig won't fly!!

Reason #1,
No moderator, leader, whatever you want to call it..
If you really want to have a rig, you need a team leader to get things going,
then you need to appoint ceratin people to certain parts of the design.

EG:
System level design

VFO design
Front End Design
Rx
TX
QSK circuitry
band switching..
P.C. board layout
Testing for conformance.

etc.
you don't have it, you won't get there from here until you do, unless some
individual contributor takes it all on by him/herself. (kk7B)
If you want a really nice fancy rig, you won't get there with the
current process!!
Wake up and smell the coffee, wayne n6kr said it pretty good, when he
said there are a lot of good ideas.. I think that's about as far as we
could take it here.
73 es good luck, I'll be the first to want to build the rig when it's
done.. :-)

Brad
WB8YGG

From ab4el.com Tue Aug 24 00:00:00 1994
From: "JEFF M. GOLD" <JMG@tntech.edu>
Subject: hw9

I have a HW9.. won't ever be sold.. till maybe after my first
born.

For what it does.. can't be beat.

72

Jeff, AC4HF

From ab4el.com Tue Aug 24 00:00:00 1994
From: mont@netcom.com (Mont Pierce)
Subject: inet rig, lets go...

Alright you hams. Everyone seems to be think that the group is going
to sleep on this. Well?

Here's an idea I've only heard touched on, but it sounds great to me.
Why re-invent the wheel. The T2 and R2 boards sound like a good starting
point. They're modular and well designed. I've ordered mine. You hams
choose what you want for these modules... :)

T2
- --
I hope this kit comes with enough instructions on how to select all
the modes it supports, lsb,usb,dsb,am,cw, and nbpm.

R2 & T2
- -------
Both of these require two vfo inputs, one 90 degrees out of phase
from the other. This will be an interesting problem to tackle. I
plan on just using the circuitry proposed by Rick the author and
working with only one band to start with. In the future, I'll add
other phasing networks and a way to switch them when going from
band to band. Another interesting experiement would be to use a
varacter in the phasing network and have it track the phasing as
the vfo is tuned.

Now the next part, the vfo.
- ---------------------------
I've thought about using the Techno Whizzy DDS VFO, it's absolutely marvelous for accuracy, but it requires to much supporting circuitry (a computer, microcontroller, or something to give it flexibility) to me. I figure it would be easier to use a well designed stable vfo and an accurate frequency counter with display.

Now then, since I've never designed or built (kits don't count) a vfo before, time to tap into the wizards of the group:
    What is a good VFO design?
    What range can be easily expected?
        .5mhz (like 5.0 to 5.5 mhz)?
         1mhz?
         Is there a good design that will give a 5mhz range, 5-10mhz
         or something like that?

Driver & PA
- -----------
For this I plan on using the .5-54mhz RF amp designed by Zack Lau in QEX. I know I got the article around here someplace.... :)

Bandpass Filters
- ----------------
Well there's lots of these around. I want to design a circuit board with several filters for different bands and have them switched in and out with pin diodes. Can I use the same filters for output that I use for input? Or would it be better to have separate tx/rx filters?

Let's doit toit
- ---------------
One great part about using the R2/T2 modules, they work from 1 to 500mhz. So you hams that want 6m, go right ahead. Share your successes with the rest of us and those that want to can add 6m to their rigs. The same goes for each of the other bands. I plan on starting with 20m, just it should be good for mobile SSB during commute hours. I'll share my designs and successes too so others can duplicate my results.

Ok hams, let's get to it. Let us know what your all working on. Let's see who can provide the most valueable input.

72,
km6wt

- --
Mont Pierce

+---+
| Ham Call: KM6WT   Internet: mont@netcom.com |
| bands: 80/40/20/15/10/2 |
| modes: cw,ssb,fm |
+---+

From ab4el.com Tue Aug 24 00:00:00 1994
From: KELL@LARK.JSC.NASA.GOV
Subject: Re: random wire tuner.

I'm not sure that I under stand this discussion, being basicly ignorant on the subject. Actually, I'm sure that I don't understand. However, I have seen published in SPRAT 72, and 73 of a few months ago, and I understand that it was published in QQ, and also, maybe Doug put it into the early QRPp, a design called the Super Tee Tuner. I built one and it seems to work. Where does something like that fit into this discussion. It is supposed to tune both random wires, and balanced, and unbalanced antennas. It has a series inductance followed by a shunt cap and then a series cap.

?????

Confused

Actually, Ted Kell, KC5CUW

From ab4el.com Tue Aug 24 00:00:00 1994
From: JimN0OCT@aol.com
Subject: rf transistors.....

Tom, N1OOQ asks:

>Anyone have a favorite cheap RF power transistor?
>I'm thinking of 5-15 watt range, 12V supply.
>MRF475/476 aren't the latest or the cheapest anymore.
>I did pick up some old GE D44C's at a flea this weekend,
>and somehow managed to lose them on the way home!

I hope you found your D44C's!! My favorite is the replacement

for the MRF 472. I say replacement because the local
electronics surplus shop sells them as MRF 472's, but
they are not marked as such. I buy them for $1, excluding
tax. They are cheap enough to fry, and seem to have the
same characteristics of a true MRF 472. Have used them
in class C final amp service for 30 and 15 meters, both
designs putting out about 5 watts.

With prices for '472's, '475's, '476's, 3553's etc. going up,
you ask a very germane (Jawohl!) question.

If you can find something locally that works and is cheap, go with it.
MPS-U02's work fine for 30 meters and down (ft=150 MHz) as
do other xistors not specified for RF service. Look for
ones specified as high speed switches and experiment.

72, 73, whatever it takes.....

Jim n0oct